EA 1.2 The Origins of the QIC-Decide Data Based Decision Making Model

Data are used in most, if not all professions, to guide decision-making. From architecture to medicine, to engineering and psychology, all make use of data to assist in making appropriate professional decisions. Indeed, a hallmark of most professions is the practitioners' ability to examine data appropriately, to apply discipline-specific decision making rules and to reach defensible conclusions and actions based on them. Increasingly, these expectations are being applied to education across all levels of the system.

Educators are being both pushed and pulled to become more data literate and to use data more frequently in their decision-making processes. With the growing accountability movement in education (e.g., Marzano & Kendall, 1996; Thurlow, Elliott & Ysseldyke, 1998; Elementary and Secondary Education Act, 2002), educators increasingly are being pushed to demonstrate with data that their efforts make a difference in student learning. These requirements created the need for educators to use data more frequently and in different ways than have been the case historically. Educators are also being pulled to use data through their increasing understanding that data can help them make better teaching decisions to increase student performance.

In Iowa, educators are further expected, in most cases, to use data to help guide their decisions regarding what actions should be taken at a systems level to improve teaching and learning (cf. Chapter 281.12 of the Iowa Administrative Code). This ongoing statewide initiative has become known colloquially as "School Improvement"

throughout the state. In efforts to improve the Iowa education system, two major Data-Based Decision Making (DBDM) models were advocated by the Iowa Department of Education during the past 10 years. These include the Action Research Model (Calhoun, 1994) used by the Every Child Reads initiative and the Problem Solving assessment and intervention process put into Iowa Rules of Special Education (281.41) in 1995. These models have significant similarities. Indeed, perhaps their most salient difference is the level of the system where the model is applied. Problem solving is applied typically for individual students while action research is applied typically at a group level. Despite these differences, however, their logic sets are very much the same.

To understand the foundations for the DBDM models used in Iowa, it is helpful to briefly identify the research traditions underlying them. Many models for DBDM exist, whether explicitly or implicitly referenced as such. Indeed, the only requirements of a DBDM model are (1) an explicitly articulated process of inquiry and (2) the use of systematically collected information to inform professional judgments. The DBDM models that have most application to education either have been developed by educators, or come from human services professions (e.g., medicine, psychology, social work). Data based decision making models that are frequently used in educational practice include Behavioral Consultation (Bergan & Kratochwill, 1990; Kratochwill & Bergan, 1990; Sheridan, Kratochwill, & Bergan, 1996); the IDEAL problem solving model (Bransford & Stein, 1984); Functional Analysis of Behavior/Functional Behavioral Assessment (Repp & Horner, 1999; Tilly III, Knoster, & Ikeda, 2000); The Scientist Practitioner Model (Barlow, Hayes, & Nelson, 1984);

Curriculum-Based Measurement (Deno & Fuchs, 1987; Shinn, 1989); Applied Behavior Analysis (Baer, Wolf, & Risley, 1968); Action Research (Calhoun, 1994); Iowa's Special Education Problem Solving Model (Reschly & Ysseldyke, 1995); and Deb Wahlstrom's models for using data in education (Wahlstrom, 1999). Each model contains unique features, protocols and language. In some cases, specific philosophies of science or theoretical orientations predominate and differential emphasis is placed on alternate parts of the process.

No matter which specific approach or model of decision making is considered, four thematic steps are present in practitioner thinking: (1) What question is being addressed (or what decision is being asked to make or what will be done with the data after collected)? (2) What information is needed to address this question or decision? (3) How will the information be collected and summarized? (4) Make the appropriate decision. Each of these steps has sub-steps and techniques that need to be applied to guide the thinking process. However, the four steps are the minimum necessary in order carry out DBDM with accuracy. Indeed, if any of the four are missed in the decision making process, something important is missed and the defensibility of the ultimate decisions could be compromised.

The QIC-Decide model was designed by examining the DBDM literature and by synthesizing the minimum, critical components that appear consistently across different models. Using this general approach to designing a model, rather than adopting a pre-existing model designed for a specific purpose allows DBDM to be taught in a general context, and then applied to many different situations. Standards and benchmarks for the QIC-Decide process are contained in Table 1.

Clearly, QIC-Decide is a logical process that many people do informally every day, which adds to its practical appeal. QIC-Decide practices are intuitive, easy to understand and easy to explain. The QIC-Decide thinking process applies equally to educational questions or decisions at every level of importance. What changes for different questions or decisions is the systematicity, rigor, precision, resource intensiveness, and possibly the intrusiveness of the tools and procedures that are used to accomplish the decision making process. For example, a small decision that affects few people will not necessitate the same rigor in using QIC-Decide as would a long-standing district-wide problem that deeply affects students' lives. However, the same thinking logic could be applied to both circumstances. This consistency of thinking is an important component of the QIC-Decide process. Learning to apply and internalizing the thinking structures in the QIC-Decide process are perhaps the most critical variables in being able to implement it in practice.

Steps in QIC-Decide

The QIC-Decide process is broken down into four logical, easy to follow steps. These steps are:

Question: In this step of the process, persons who are involved in the decision making process determine what data is needed and how the data will be used when collected. The "question" step is one of the most frequently deleted steps in the DBDM process, but perhaps one of the most critical. The best way of determining why data are needed and focusing the DBDM process is to specify a question at the outset or what decision the data are going to be used to make. For example, questions may be written in the form of "What effect will the increase of reading instruction in my classroom to 55 minutes a

day have on student performance?" or "Should we dismiss school early because of the ice storm?" or "Should Christina be exited from special education programming?" This question asking process has the advantage of focusing data collection on only relevant variables, causing the data collectors to consider up front exactly what kind and how much data are needed to address the issues, and serves to focus the process of data analysis since only those summaries that will help answer the specific question will be completed. In some DBDM models, practitioners are encouraged to begin the decision making process by examining specific sets of existing data to see what can be gleaned. While this process can often yield interesting results and insightful observations from participants, without the specific purpose provided by the written question to anchor the data collection activities, data evaluation can become an end in itself. That is, looking at the data becomes the purpose, rather than using those data to improve teaching and learning. It can also lead to the phenomenon many of us have experienced: looking at a fancy graphical display of data and wondering 'What am I supposed to be getting out of this?' With a specific written question or decision in place, guiding DBDM, this type of situation rarely occurs. A general rule often taught to students who are learning about DBDM is: "If it is not clear why you are collecting certain data, STOP! – you may be wasting your time."

Identify Information: After a question is written, the second step in the process is to identify specific information needed to address the question or decision. One mistake that sometimes is made is to not consider specifically how much of

what kind of information needs to be collected to address any given question. This situation can lead to collecting too much information or the wrong information to address the question at hand. In this step of the DBDM process, decision makers need to consider the consequences associated with the decision to be made and to match the amount and type of data to be collected with the consequences. If too few data are collected for high-stakes decisions, the situation can result in decisions with questionable defensibility. On the other hand, if too many data are collected for a relatively low-stakes decision, the situation results in a waste of resources that could be better used elsewhere. Additionally, decisions need to be made at this point regarding which types of data need to be collected to address the question. Matching data nature and amount to the question or decision ensures that decisions will be made responsibly, based on the best information available.

Collect and Summarize Information: This third step is the action step. In this step, a data collection plan is created, data are collected and data are summarized to address the questions at hand. As with the other steps, care is taken to collect only the data needed to address the question or decisions and to create only the summaries that are necessary to reflect the information accurately. There are many appropriate ways to collect and summarize data. The mnemonic RIOT is a useful memory cue when examining possible data collection strategies. The letters refer to the different ways of collecting information: Review currently existing information, Interview others, Observe situations, or

Test people. Additionally, there are nearly infinite ways of collecting information.

Decide: The final step in the process is to use the data summarizations from Step 3 to answer the question or to make the decision stated in Step 1. This process sounds easier than it is. It is here that discipline-specific rules for evaluating data come into play. A context for examining the data must be determined and the data examined in that context. In some cases, the context for understanding the data is obvious. If the question is, “Should we build the new elementary building in town X or town Y?,” the decision making context is clear. In other cases, the context is less evident. For example, if the question is, “Did our third graders make enough progress in reading this school year?,” we need to know how much progress is acceptable or desirable. These contexts for data examination allow us to make professional decisions with data. Indeed, in other professions, it is making decisions within these contexts that helps define professional behavior. If a physician examines data from a blood test that provides data indicating a serious but treatable infection and decides to allow the patient to suffer and maybe die, that could be an unprofessional decision. While decisions in education most often are not as grave as the example, the analogy still holds true. With improvements in the ways we measure and document student learning, we are in better and better positions to create meaningful decision making frameworks that will result in improved teaching and learning.

QIC-Decide Staff Development Program

The staff development process designed for QIC-Decide is built around specific competencies that need to be in place to implement QIC-Decide. Each of the modules contains examples of the application of the QIC-Decide model to common education decisions. The process is structured so participants gain experience in applying QIC-Decide in practical situations. The ultimate objective is for participants to internalize the QIC-Decide thinking process.

QIC-DECIDE STANDARDS AND BENCHMARKS

Question

Standard 1: Identifies and forms important questions that define a specific problem.

Benchmarks:

1.1 Identify questions that will lead to improved programs, services, and results for children and youth.

1.2 Forms assessment questions in a way that they can be answered with data.

Information

Standard 2: Identifies the information needed to answer the question.

Benchmarks:

2.1 Determine the type and quality of the information needed based on the nature of the decision.

2.2 Identify the quantity of information based on the nature of the decision.

Collect

Standard 3: Collects and effectively organizes information.

Benchmarks:

3.1 Use efficient and effective data gathering strategies

3.2 Organize and analyze the information appropriately.

Decide

Standard 4: Uses information to make important educational decisions.

Benchmarks:

4.1 Appropriately interprets the information to draw conclusions that are meaningful to educational practice.

4.2 Uses the collected data to document and justify the decision, taking into account the possible limitations of the data.

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